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# HOT WATER FLUSHING

APPLIED TO

14.

## GENERAL SURGERY.

BY

ROBERT O'CALLAGHAN, F.R.C.S.I. ;

SURGEON, CARLOW CO. INFIRMARY.

Reprinted from the Dublin Journal of Medical Science December, 1891.

DUBLIN :

PRINTED FOR THE AUTHOR

BY JOHN FALCONER, 53 UPPER SACKVILLE-STREET.

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It is now five years since I stated in a paper on "Abdominal Section," read before the Section of Obstetrics in the Royal Academy of Medicine in Ireland, that in my experience true anti-epptic surgery meant absolute cleanliness, and tried to show then that the result of my abdominal work up to that time demonstrated that this was easily obtained by flushing with large quantities of hot water from the tap at a given temperature. This important addition to surgery is one of the many that the surgeon has learnt from the modern gynæcological school, the pioneer of which taught me its value. I found I could get better results by this simple treatment than by the elaborate preparations and detail which I formerly practised with assiduity, and had been taught was positively essential for asepsis; which, although carried out under the most careful supervision, was far from satisfactory—suppuration and even septicæmia occurring in the work of many of our brilliant surgeons. The defects of this Listerian method were never so apparent as when watching the work of a well-known operator, who religiously adhered to and was surrounded by all the paraphernalia of Listerism. The spray was wetting him and his assistants thoroughly, chilling the patient; his carbolised instruments were handled by anyone, laid down anywhere but in the appointed tray; sponges accidentally dropped on the floor were picked up covered with a million streptococci and washed with the others. This is not imagination; but even in this year of our Lord, despite the most carefully laid down rules, it happens every day in many an operating theatre.

<sup>a</sup> Read in the Surgical Section of the British Medical Association at Bournemouth, July 29, 1891.

No one knows how hard it is, except those who have tried, to get medical men and nurses—mark, I speak of the better class and well trained—to grasp the meaning and importance of surgical cleanliness. Some, when they have washed their hands as if going to dinner, rinsed them in carbolic or sublimate, mopped the wound and its area with a sterilised lotion, and have all the other details of this elaborate method, think that all is perfectly safe inside this elaborate cordon. Should there be failure in asepsis after all this observance of detail, the lotion, ligature, or dressing is blamed, but the real secret of failure is overlooked. Too much faith has been placed in this chain of antiseptic agents; a link has been dropped by some carelessness of detail on the part of the operator, assistant, or nurses—this link being absolute cleanliness, which in itself is the basis of the whole fabric called Listerism, which, when carried out in a thoroughly trained clinic, is very pretty and imposing and generally successful, but which I maintain is quite unnecessary if cleanliness alone is observed.

Having experienced all this, and been through the maze of antiseptic surgery, carrying out every detail as precisely as was possible (in accordance with the rules laid down with so much fullness and clearness in that excellent work of Mr. Watson Cheyne on “Antiseptic Treatment of Wounds”), with so many disappointing results, I abandoned it five years ago in favour of absolute cleanliness, which I found was the basis of antiseptic work, and was brought about by hot water flushings before, during, and after operation. The details of this treatment are easily followed. I have supplied myself with two glass jars capable of holding four gallons, and to each of which is attached ten feet of rubber tubing with nozzle and stopcock. These are on automatic telescopic stands, and filled with hot water at a temperature of 118°, or as hot as the hand can bear; colder than this is useless. Begin by douching your wound area, or wound if there is already one, using a sponge or brush in conjunction with this. During operation your assistant removes blood, pus, or any *débris* with this jet of water. After tying vessels, douche until all capillary oozing ceases; and having stitched up your wound, now use the water as hot as it can possibly be borne over the wound surface and its area *ad lib.*; dry and apply dry wool dressing. All this time your hands, instruments, and sponges have been under a stream of hot water, and defied the attack of the various organisms liable through contamination of tainted atmosphere, untrained assis-



tants, incompetent nurses, or ignorant probationers, which I have already stated had a great deal to do with the repeated failures of asepsis in the so-called Listerian method, which, with its elaborate preparation and detail, to say nothing of getting up steam with a possible bursting of your boiler, took up a lot of unnecessary time, if not a whole morning.

In the after-treatment and re-dressing hot water is again resorted to. Your rubber sheet and bath being in position, the douche is turned on until the dressing of a week or more (which is as stiff as a splint from the primary oozing) practically falls off the wound itself; douche the wound thoroughly, which if not healed throughout is quite aseptic; dry and dress again.

To illustrate to you that I have given this method a fair trial, I shall now give you a short summary of a few capital operations performed by me in the Carlow Infirmary during the past five years, referring briefly to special cases and the advantages of this treatment. The good results thus proved will, I hope, convince you completely of the claims of this simple antiseptic agent, which is as powerful as any we possess, and can be obtained in the remotest district at very short notice. In amputations I have noticed that it causes quicker adhesions of the flaps, which under the old method and steam were cold and flabby, but which the hot water makes warmer than the body, causing capillary activity, which is continued by the warm wool dressing, and results in healing by first intention. This has been the case in three amputations of the thigh; ten below the knee, two of which were primary in one patient after a railway accident, and who was suffering from advanced mitral disease, which in no way interfered with the good result; six amputations above the elbow; one at the elbow for senile gangrene in a patient aged seventy-two.

In empyema, having made a large incision, I flush out the pleural cavity until the water returns clear, and drain. I have had three cases, all of which resulted in complete cure. In the last case I removed the drainage tube at the end of the third week. In excision of the os calcis and astragalus, treated in the same manner, the wound was quite healed and the patient able to walk about with a pad under the heel at the end of three months. Strangulated hernia with radical cure, fourteen; two of these occurred in men over eighty, all successful. Umbilical hernia, two; excision of hip, one; psoas abscess, curetted, two; &c.

These capital operations, taken at random from my general



surgical work, are all examples of the results obtained from this mode of procedure. I do not include abdominal or gynæcological operations, to my experience in which branch of surgery I owe the adoption of hot water flushing in general surgery; and since I have used it exclusively I have had nothing but good results, knowing nothing of septicæmia, erysipelas, or any of their cousins. Hence my anxiety to bring it to your notice, claiming no priority. Though never having seen it described in text-books, nor yet observed it carried out in practice, I feel sure that some surgeons have been working in the same field. However, from time to time I have seen warm water "PLAYED" with, and squeezed over wounds with sponges; but this I want to impress on you is not what I mean by hot water flushing.

The success which I claim entirely depends upon the thorough comprehension of the facts—(1) that the temperature of the water is not under  $115^{\circ}$ ; (2) that you have gallons of it for use, which will insure a constant and unremitting supply from the beginning of the operation to the end, and by this obtaining the desired object—a perfectly aseptic wound.



